

ABSTRACT OF THE DISCLOSURE

A porous MSQ is formed on a silicon substrate, and an SiC mask is formed thereon. Plasma etching using the SiC mask as a mask is performed to form a trench in the porous MSQ. A fluorinated polyxylilene film is formed on the entire surface of the substrate including the side surfaces of the trench, and the unnecessary fluorinated polyxylilene film formed on the area other than the side surfaces of the trench is removed. A barrier-metal film and a seed Cu layer are formed in the trench and a Cu is deposited.